

MEASURING FINANCIAL LITERACY AND UNDERSTANDING ITS IMPACT ON ENHANCING USAGE OF DIGITAL FINANCIAL SERVICES BY INDIAN CONSUMERS

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ABSTRACT :

Emerging digital economies are emphatically in need of digital financial literacy, especially, post Fintech revolution and ongoing COVID 19 pandemics. The aim of the study included, inter alia, measuring Financial Literacy and devising relevant metrics for assessment and evaluation of its impact on enhancing catalytically, usage of Digital Financial Services by the diverse Indian population. The multitudinous components of Financial Literacy and their impact are empirically analyzed using a multi-dimensional approach for facilitating the formulation of relevant strategies for the various population cohorts by policy makers and international institutions/ bodies, endeavouring the cause of more digitally empowered and financially educated citizens and garnering towards UN #Envision2030ⁱ of holistic sustainable development through digital financial inclusion.

KEYWORDS: *Digital financial literacy, financial literacy, financial knowledge, financial awareness, financial attitude, financial inclusion, COVID 19 pandemic.*

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1. INTRODUCTION

The burgeoning digital age accelerated due to the Fintech revolution and the continuing COVID 19 pandemics have exacerbated that globally and more so, emerging economies redefine Financial Literacy and develop robust measurement and assessment metrics for improving their citizens' financial decision making and empowering them for better economic growth and sustainable development. The fast growth of digital financial services (DFS), which promises to increase financial inclusion and personal financial management, has categorically thrown up a new challenge: coupling financial literacy (FL) to digital literacy (DL) and evaluating their dual impact on financial outcomes. Traditional FL definitions and measures have become inadequate to capture the uniqueness of financial services in a digital setting. (Lyons and Kass-Hanna, 2021) Our present study proposes a framework to operationalize the emergent concept of digital financial literacy (DFL) and examine empirically determinants of Financial Literacy (FL), Digital Literacy (DL) and, more emphatically, analyze the impact of FL and DL on enhancing usage of Digital Financial Services (DFS). Financial literacy (FL) is defined as the "knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life". (OECD, 2014) Globally, consumers and financial educators are becoming more cognizant of its potentialities to catalyze financial inclusion and enhance the usage of digital financial services in financial decision making.

Digital Financial Literacy (DFL) refers to the understanding of online systems for spending and saving money via online payment and banking (Prasad and Meghwal, 2017). DFL is thus described as financial literacy in the context of digital financial technology. According to the OECD (2018), DFL can improve spending and saving habits.

Lyons and Kass-Hanna (2021) in their study, defined Digital financial services (DFS) as “financial services which are accessed via the Internet or a digital device such as a mobile phone. These services include, but are not limited to, online banking and digital payment tools such as mobile money and digital wallets, as well as peer-to-peer lending and remittance services”.

The present study aims at redefining and measuring Financial Literacy in the digital age, devising robust and verifiable assessment metrics incorporating the catalytic role of digital transformation in comprehending and modelling Digital Financial Literacy. The findings of this empirical study would not only provide a foundational framework for understanding the various multi-dimensional components/ determinants of FL for policy makers of various nations, but also, facilitate a deeper understanding of the influencing socio-demographic variables on FL and its impact in enhancing the usage of Digital Financial Services by the citizens of those nations with special emphasis on vulnerable groups of the population.

2. OBJECTIVES OF THE STUDY

The main objective of the study is to present the current state of digital financial literacy research, with the following questions defining the study's scope:

RQ 1 What is financial literacy in digital age, how can it be measured and how digital financial education enhance usage of digital financial services by consumers?

RQ 2 What are the current financial literacy levels and usage of digital financial services across various groups of the population?

3. LITERATURE REVIEW AND THEORETICAL BACKGROUND

Digital Financial literacy is a relatively new concept that has piqued the interest of academics in recent years and has the potential to be one of the most fertile and useful areas of behavioural finance research. Prior to comprehending digital financial literacy and its contextual components, a brief review of literature revealed that, financial literacy provides commendable economic effects attributed to improved and systematic planning, investment, borrowing, financial well-being, financial aptitude, and financial inclusion. (Goyal and Kumar, 2021)

The OECD defined **financial knowledge, financial attitude, and financial behaviour** as three peripherals to financial literacy (2005). Huston (2010) published a seminal study on the definition and assessment of financial literacy. According to the author, financial literacy encompasses both knowledge and the capacity to apply that knowledge while making financial decisions. Remund (2010), highlighted the need for effectively defining and measuring financial literacy. A positive financial attitude stimulates financial knowledge, and people with a positive financial attitude are more likely to plan ahead (Lusardi & Mitchell, 2008, 2011a). A literature review revealed that while talking about personal financial management, a person who is more financially literate is more likely to possess the necessary knowledge, **attitude**, and behaviour needed for effective analysis and decision making. (Lusardi & Mitchell, 2011a ; Atkinson & Messy, 2012). Further studies also highlighted that financial attitude, financial knowledge, and financial behaviour are all interwoven, not

just with financial literacy, but also within themselves. (Agarwalla, Barua, Jacob, & Varma, 2015) and, according to the conclusions of the OECD (2016), financial knowledge imbibed can reward healthy financial discipline and promote digital financial inclusion. The OECD (2018) also emphasized the need of integrating digital technology to improve financial literacy. According to a recent study (Bavafa, Liu, & Mukherjee, 2019), using the internet for processing financial information improves financial literacy. Studies also revealed that financial literacy is defined by factors such as gender, education, income, household investments, financial knowledge, financial attitude, and financial behaviour (Scheresberg, 2013., Santini et al., 2019). Demographic variables like age (Lusardi & Mitchell, 2014; OECD, 2009), gender (Chen & Volpe, 2002), income (Lusardi & Tufano, 2015), years of work, and socio-economic variables all influence people's financial literacy (Herd, Holden, & Su, 2012). Financial literacy, according to Lee, Lee, and Kim (2019), has a positive impact on financial well-being.

Studies by Prasad and Meghwal (2017) and Morgan and Trinh (2019b, 2019c) revealed that four DFL dimensions: knowledge of digital financial products and services, experience in using digital financial products and services, awareness of digital financial risk, and skill in controlling and managing financial digital activities. Furthermore, the rapid rise of digital financial services and products (DFS) that are accessed and distributed through digital means such as mobile phones have occurred from the emergence of financial technology, or "fintech," coupled with the current COVID-19 global pandemic (Lyons, Kass-Hanna, & Fava, 2021). DFS has provided consumers with user-friendly, convenient, accessible, and economical alternatives to traditional options amid societal distance and lockdown measures, thereby diminishing the 'digital divide' between cash driven vs. digital consumers and facilitating the adoption of digital payment systems. (Jain & Chowdhary, 2021). However, the migration to DFS has revealed key digital literacy flaws as well as revealed that there are some clientele groups that are more vulnerable than others. These vulnerable groups are not only less prepared to benefit from greater financial access and new digital solutions, but they are also at risk of falling behind on the rapid pace of digitalization (Lyons and Kass-Hanna, 2021). Our current research aims at objectively and empirically analyzing the financial literacy components of Indian consumers towards enhancing usage of DFS, especially by the vulnerable groups of Tier 2 and Tier 3 cities in the digital age.

4. CONCEPTUAL RESEARCH MODEL

This study examined the relationship between financial literacy and digital usage of financial payment systems. In particular, this study examines the influence of several dimensions of financial literacy on digital usage. In consensus with the Financial Literacy survey outlined in NCFE (2019) and the thematic background discussed, we holistically comprehend and propose, Financial Literacy comprising of five constructs: Financial Attitude, Financial Behavior, Financial Awareness, Financial well-being, and Financial Knowledge. The logical linkages between multitudinous financial literacy components are depicted in the conceptual framework. (Figure 1)

The study includes various demographic features as it is conducted in multiple settings. These settings are based on age, gender, occupation, annual income, and education qualification. For example, a male teenage respondent from a semi-urban area has completed his college graduation and belongs to the middle-income group. This study analysed the response of diverse groups, but most of the participants for this study belong to smaller Tier 2 and 3 cities. So, they possess significantly less information about online frauds. Thus, the fraud awareness construct was dropped from the data analysis.

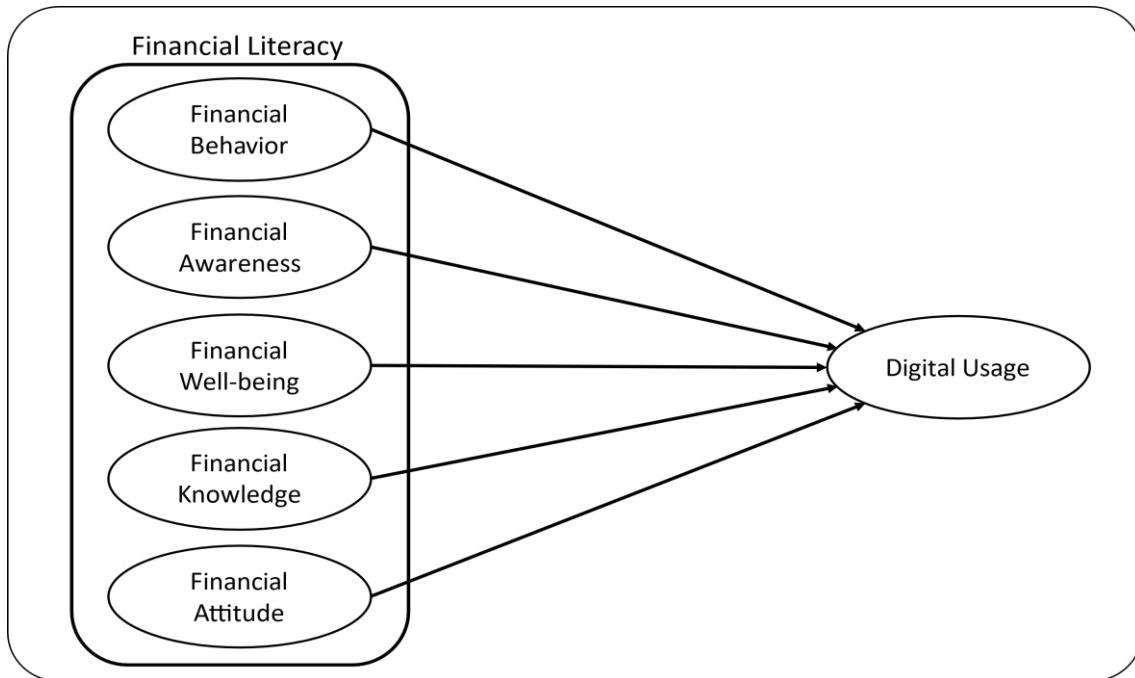


Figure 1: Conceptual Research Model

5. RESEARCH METHODOLOGY

5.1 Sample Selection and Data Collection Procedure

Empirical data for this study was collected via an online and offline survey. In order to determine the financial literacy levels, the target population comprised of inhabitants older than 18 years of age of the state of Madhya Pradesh, the second largest state in India. Taking into consideration the population as per 2011 census of 7.27 croresⁱⁱ adopting a sampling process with 95% confidence level, 5.0% sampling error and sample proportion of 50%, a sample of 385 (approx.) respondents was arrived atⁱⁱⁱ. The survey was conducted among diverse groups based on their educational qualification, age, annual income, and occupational sectors. Convenience sampling and snowball sampling techniques are used to perform the survey. This survey was conducted in both online and offline methods, since COVID 19 pandemic protocols were strictly adhered to during the study. In online mode, the survey link was sent to participants via email. The rationale behind using convenience sampling and snowball sampling was to have a fair representative sample, barring geographical constraints and including citizens from rural, semi-urban, urban and metropolitan areas through social networking platforms. An email with a survey link was sent to participants and then, they spread the survey link among their network. Respondents were requested to provide demographic information along with the survey responses. Since all the questions were marked mandatory using '*' sign, the problem of non-response bias does not affect the study. For offline mode, participants filled out the paper-based survey. It is worth noting that the questionnaires were given to respondents face to face, via house visits and meetings in public locations. Respondents were given a free and informed consent forms along with the questionnaire, and only those who accepted to participate in the study after reading the terms were contacted. (Potrich et al., 2015) Finally, from both the online and offline modes, a total of 706 responses were collected and analysed in this study.

The descriptive data collected for this research revealed that the sample contained gender-balanced participants, with 49 percent male respondents and 51 percent female respondents. The majority of respondents belonged to two age

groups, first, between 18 and 29 years (34 percent) and another, between 30 and 44 years (39 percent), whereas only 7 percent of users are older than 60 years. (Refer Table 1). This type of sample distribution reflects a considerable share of the working-age population, and comes across various financial schemes launched by the government. Further, considering the educational level of the respondents, 56% of the sample have completed their schooling, whereas 21% of the participants do not have any formal education. Thus, it represents that the selection includes the rural area population significantly. Approximately more than 53 percent of the respondents were earning less than INR 3 lacs per year; on the other hand, only 8 percent of participants were earning more than INR six lacs. This sample includes respondents from different occupational sectors. However, for simplicity, we have categorized respondents into two categories: government and non-government. The demographic features of the participants are presented in Table 1.

Table 1: Descriptive Statistics of the Respondent's Characteristics

Variable	Categories	Frequencies
Gender	Female	357 (51%)
	Male	349 (49%)
Age	18-29	241 (34%)
	30-44	275 (39%)
	45-59	139 (20%)
	60+	51 (7%)
Education	No Formal Education	21 (3%)
	Secondary School	132 (19%)
	Higher Secondary	258 (37%)
	Diploma /ITI	58 (8%)
	Graduation	113 (16%)
	Post-Graduation	90 (13%)
	Doctorate	34 (5%)
Annual Income	< 3,00,000	376 (53%)
	3 to 6 lacs	277 (39%)
	6 to 12 lacs	53 (8%)
Occupational Sector	Govt	76 (11%)
	Non-govt	630 (89%)

5.2 Instrument (Questionnaire) Design

This empirical study adapted the survey questionnaire from survey results published by National Centre for Financial Education (NCFE, 2019). NCFE is promoted by several regulatory bodies such as the Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), and Pension Fund Regulatory and Development Authority (PFRDA). This questionnaire included items to measure financial behavior (FB), financial awareness (FA), financial well-being (FWB), financial attitude (FATT), financial knowledge (FK), and usage of digital financial services (DU). Respondents were requested to express to fill the five-point Likert scale, ranging from “strongly disagree = 1” to “strongly agree = 5” for all the items.

5.3 Statistical Analysis

The data was analysed in two stages. The measuring model's fitness was tested in the first stage. The reliability and internal consistency of the items used to measure the variables in this study were determined using Cronbach's alpha and composite reliability. To complete the fitness test of the measurement model, convergent and discriminant validity tests were

performed. The link between the latent variables of the suggested research model was evaluated in the second stage using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique. This study employs the PLS-SEM path modelling technique to evaluate the causal link between the indicators and latent components and to examine the conceptual research framework (Gudergan et al., 2008). The use of PLS - SEM is appropriate for this study due to its capability of solving multiple and inter-related latent variables (Hair et al., 1998). Furthermore, when using PLS-SEM, researchers benefit from the method's high degree of statistical power as compared to Covariance- based Structural Equation Modelling, (CB-SEM) since, greater statistical power means that PLS-SEM is likely to identify relationships as significant when they are present in the population (Sarstedt, 2019). SmartPLS 3.2 tool was used to conduct the data analysis for this study.

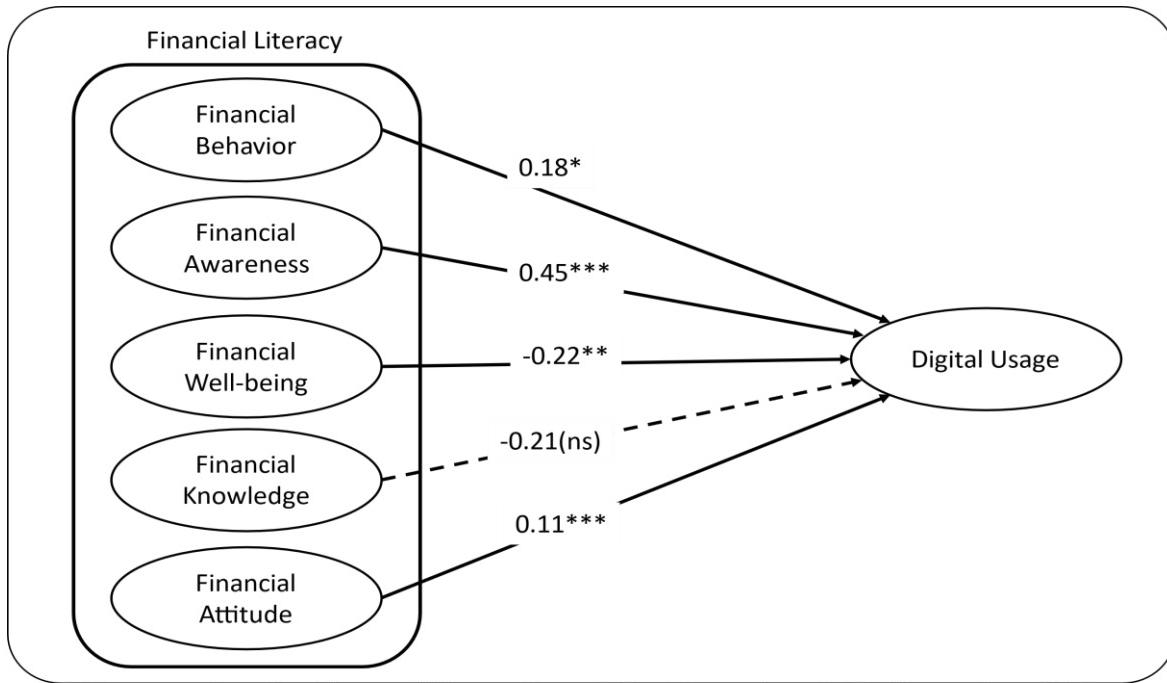
6. DATA ANALYSIS AND RESULTS

The factor loadings for all the constructs are mentioned in table 2. The constructs display good reliability with Cronbach's alpha and composite reliability. Further, a few factors were removed during the analysis due to either low factor loading or high multi-collinearity. The socio-demographic variables were taken as control variables for the study. We then conducted the confirmatory factor analysis using PLS (Table 2).

Table 2: Results of Factor Analysis

Construct (Items)	Loadings	Alpha	Composite Reliability	AVE
Financial Behavior (FB)	0.94, 0.92, 0.95, 0.92	0.95	0.96	0.87
Financial Awareness (FA)	0.88, 0.67, 0.92	0.77	0.87	0.69
Financial Well Being (FWB)	0.94, 0.82	0.72	0.87	0.77
Financial Attitude (FATT)	0.80, 0.79, 0.828	0.74	0.85	0.65
Financial Knowledge (FK)	0.77, 0.99	0.83	0.88	0.79
Usage of DFS (DU)	0.77, 0.90	0.59	0.83	0.70

After establishing the convergent and discriminant validity of the construct, the partial least squares (PLS) technique was used to analyse the data on the SmartPLS tool methodically. The bootstrapping feature of this tool helps to create a large pool of samples from the given data and test the model in the best possible way. For this study, 5000 samples were generated through the bootstrapping mechanism and tested the hypotheses aggressively. Figure 2 depicts the outcomes of PLS modelling.



Note: ns: Not Significant, ***: p-value <0.01; **: p-value<0.05; *: p-value <0.10

Figure 2: The Outcome of PLS Modelling

The results of the PLS modelling show a substantial influence of financial literacy on the digital usage of financial instruments. Three constructs of financial literacy show a positive and significant association, and one construct shows a significant negative relationship with digital use. In contrast, the impact of financial knowledge is non-significant on digital usage. Further, this model explained a total of 22% (approx.) of the variance in the usage of digital financial services.

7. IMPLICATIONS

The continuing Covid-19 pandemic expedited the spread of DFS and diluted financial and digital asymmetries. However, the adoption and use of DFS is still hampered by a lack of financial expertise and confidence among the diverse population cohorts, making chances to save and plan for emergencies and future objectives, acquire wealth, and guard against risk by them exiguous. The finding of this study gives insight into the same, depicting a negative association between financial well-being and usage of DFS. Financial Awareness and Financial behavior of the citizens have a significant positive relationship with Financial Literacy, which in the hindsight, is very crucial for enhancing Digital Literacy and harnessing the catalytic synergies of FL and DL for adoption and usage of DFS in financial decision making by all.

This study is of the genre of primary research supported with structured questionnaires so that we can better and holistic insight into the determinants of the financial literacy of an individual and can be a guiding manual for devising robust and appropriate metrics for Digital Financial Literacy too. Moreover, policymakers and international bodies like OECD International Network on Financial Education have to devise inclusive financial education programs by revisiting and re-engineering the financial literacy measurement and assessment tools for the digital age, reformulating the metrics of Digital Financial Literacy, so that citizens capitalize on the efficacy of DFS and enhance the usage of DFS in financial decision making. Digital Financial Literacy campaigns need to be redesigned by policy makers and protagonists of financial education, highlighting the effectiveness, accessibility, affordability and risk minimization measures of DFS to

reach the masses, especially vulnerable groups of Tier 2 and 3 cities, of India, or other emerging economies to promote and enhance their adoption and usage taking into consideration, the outcomes of this study.

8. CONCLUSION

Summing it up, imparting knowledge about key FL concepts is still critical to financial planning and decision making. Citizens of emerging economies currently need to be 'digitally literate' enough to capitalize on financial information and undergo training on how to use new digitalized platforms, robotic advisory services, digital investment products such as cryptocurrencies, and other digital investment products to achieve and sustain long-term financial security. The conceptual framework outlining the multitudinous components of Financial Literacy, the linkages between FL and DL, the impact of FL on enhancing usage of Digital Financial Services in financial decision making significantly contribute to providing a multidimensional insight on how to re-engineer and redesign effective Financial Literacy strategies and initiatives that are all encompassing digitally, empowering the masses economically and ensuring digital financial inclusion and holistic sustainable development.

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